

## ABSTRACT

A system for controlling sensor motion during a time-dependent measurement, comprising a drilling assembly having a drill bit at one end and engaged with a drill string extending to a surface location at an opposite end thereof. A sensor is disposed in  
5 the drilling assembly for making a measurement of a formation parameter of interest. A non-rotating stabilizer is disposed in the drilling assembly proximate the sensor. The non-rotating stabilizer is adapted to reduce motion of the sensor below a predetermined level during the measurement. In one embodiment the rotational axis of the stabilizer is eccentric with respect to the borehole. In another embodiment, the non-rotating stabilizer  
10 has an extendable rib for changing the effective diameter of the stabilizer.